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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,469	10/21/2003	Bruce E. Metz	398-07	5955
2746	7590	12/30/2004	EXAMINER	
WILLIAM H. EILBERG THREE BALA PLAZA SUITE 501 WEST BALA CYNWYD, PA 19004			HOANG, TU BA	
			ART UNIT	PAPER NUMBER
			3742	

DATE MAILED: 12/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/691,469	METZ ET AL.	
	Examiner	Art Unit	
	Tu Ba Hoang	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7-17 and 20-33 is/are rejected.
- 7) ☒ Claim(s) 5-6 and 18-19 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/21/03</u> . | 6) <input type="checkbox"/> Other: ____ |

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 8-9, 14-16, 21, 25-27, and 31-33 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Shaw (RE. 31,723). Shaw shows a current reduction circuit (Figure 1) for generating sensing pulses and for directing the sensing pulses to a heating element 13 comprising an arm of a bridge circuit 15, in which it comprises an electronic switch 55,47,49 connected to the heating element in a bridge, the switch comprises means for creating sensing pulses and for directing the pulses to the heating element and means for activating the switch at selected times, wherein the means for activating and deactivating includes at least a zener diodes Z1 and Z3 and directing wherein the switch is activated at a start point in a vicinity of a zero-crossing point which is displaced from a beginning of a half-cycle of a supply voltage and at an end point in a vicinity of a maximum point of the supply voltage.

Claims 1-4, 7-17, and 20-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al (US 6,100,510) cited by the Applicants. Chen et al shows all of the claimed features including a control device (Figure 4) including a combined temperature sensor and heating unit (RH), the control device comprising a bridge circuit having a plurality of arms, one arm of the bridge circuit comprising a heating element, means for directing a sensing current through the heating element, means for detecting a condition wherein the bridge circuit is in an essentially electrically balanced state, and means for directing a heating current through the heating element in response to an essentially electrically unbalanced condition, wherein the control device comprises means for repeatedly interrupting a flow of the sensing current to the heating element, and means (Z1 and Z2 and switch Q1)) for selecting start and stop points for the sensing current, and for causing sensing current to flow only between said start and stop points, wherein the selecting means comprises at least a zener diode (Z1 or Z2) with the first zener diode Z1 is for determining a start point for the sensing current, and a second zener diode Z2 is for determining a stop point for the sensing current, the selecting means further comprises a quad comparator (D4, D5, D7, D8), a switch Q1, and an optocoupler (U2), the optocoupler U2 being connected to an RC network to receive a supply voltage and to operate the switch Q1 so as to generate pulses of sensing current having an amplitude which is essentially independent of a supply voltage, and wherein each start point is displaced from a beginning of a half-cycle of a supply voltage (column 6, lines 41-66) with each sensing pulse has a duration which is less than about 200 microseconds and is not greater than about 150 microseconds or in a range between about 100 microseconds and about 4 milliseconds (column 6, lines 33-40, i.e, about 2.0-2.5 ms of each cycle and the length of a cycle is about 16.6ms for the

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current having a frequency of 50 –60Hz), and wherein the turn-off point is selected to be about 60 degrees or less at design supply voltage (column 6, line 66 and column 13, claim 16, i.e., stays on for about 30 degree into that half-cycle and continuing until not more than about 60 degree),and wherein the sensing current is provided as a series of pulses, and each starting point is selected for each pulse from a range that begins in a vicinity of a zero-crossing point of a supply voltage and ends in a vicinity of a maximum point of the supply voltage so as to minimize current dissipation while avoiding inductive effects.


Claims 5-6 and 18-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the selecting means includes a SIDAC for determining a start point for the sensing current, and used in a combination with a zener diode for determining a stop point for the sensing current.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu Ba Hoang whose telephone number is (571) 272-4780. The examiner can normally be reached on Mon-fri from 8:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on (571) 272-4777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tu Ba Hoang
Primary Examiner
Art Unit 3742

December 27, 2004